REMARKS

Applicant has carefully considered this Application in connection with the Examiner's Office Action, of November 17, 2005, and respectfully requests reconsideration of this Application in view of the above amendment and the following remarks.

Applicants have withdrawn Claims 29-57, 64, 69, and 70;

Applicants have canceled Claims 2-5, 14-18, 23, 25, and 27;

Applicants have amended Claims 1, 6, 7, 19, 22, 24, 26, 58, 61, 62, 65, and 68;

Applicants have presented new Claims 71, and 72;

Pending claims in the Application are: Claims 1, 6-13, 19-22, 24, 26, 28, 58-63, 64-68, 71 and 72.

I. Drawings

The Examiner has objected to replacement Figure 1a that was filed on 2/3/2004 because it does not contain a figure label and does not contain reference numbers.

In response Applicants have corrected the drawing sheet to be in compliance with 37 C.F.R. 1.121(d) having the term Replacement Sheet in the top margin.

II. Claim Objections

The Examiner has objected to Claim 62 for lacking antecedent basis for the term "the original two-dimensional drawing views." Additionally, Claim 68 was objected for lacking an antecedent basis for the term "the data."

In response, Applicants have amended these claims accordingly.

III. Rejections Under 35 U.S.C. §103(a)

A. U.S. Patent 6,614,430 issued to Rappoport ("the '430 Patent").

The Examiner has rejected Claims 1-28 under 35 U.S.C. §103(a), as being unpatentable over the '430 Patent. The Examiner is of the opinion that the '430 Patent teaches the method steps of Applicant's Claim 1. Namely, the Examiner is of the opinion that the steps of "defining," and "storing," are specifically defined, and that the step of "ordering" would be required to build a feature in order to achieve the stated functionality, as described in the '430 Patent. The Examiner has stated that the '430 Patent does NOT directly teach "building features based on a feature class," but it would have been obvious to one of ordinary skill in the art at the time of the invention to build the claimed features based on a feature class. The Examiner has also selected specific terms as limitations from the '430 Patent to reject Applicants' Claims 2-28 that also utilize the same selected terms.

In response, Applicants have canceled claims 2-5, 14-18, 23, 25, and 27, which renders most of the discussion in response to the Examiner's rejections for these claims moot. Furthermore, Applicants have amended Claim 1, from which the remaining Claims 6-13, 19-22, 24, 26, and 28 now depend. Thus, the discussion in response to the Examiner's rejections of Claim 1 is discussed below, and the Amendment of Claim 1 directly effects the remaining pending claims.

Applicants submit that the terminologies used in the '430 Patent are generic CAD keywords and DO NOT hold the same direct meanings as the terms used and defined in the current application, or even consistently throughout the art. As such, it would NOT be proper to compared these defined terms as specific claim limitations without first comparing the terms on an equal footing based upon the context of how the term was used. Applicant submits the use of such similar terms is coincidental. The terms "feature" and "2-D Sketch" (as found in Table 1 of the '430 Patent) were NOT seminally defined by the '430 Patent, and hold different meanings in the art from those in the current application.

The Court has held:

> The mere fact each reference discloses some particular claimed elements is not sufficient for obviousness without some direction from the prior art. *Exparte Shepard and Gushue*, 188 U.S.P.Q 536, 538 (PTO Bd. App. 1974)

Applicants submit that the scope of building features in the '430 Patent is applicable in the 3D-3D domain where features are already present in the source 3D CAD system and are merely being mapped to the target 3D CAD system. In contrast, the scope of "building a plurality of features" in Applicants' Claim 1, deals with 3D features that are identified, defined, built, and stored starting with an input two-dimensional drawing. This concept was not discussed or described in the '430 Patent, but was described in paragraphs [051]-[054], Figure 3, and elsewhere from the current application.

Applicants have amended Claim 1 to clarify these distinctions. Additionally, the limitations of Claims 2-4 have been incorporated into Claim 1. Applicants submit that the method step of "ordering" was used in the '430 Patent in context of a "sketch-to-feature," whereas Claim 1, as amended, conveys a "feature-to-feature" ordering and a dependency resolution, which was not discussed or described in the '430 Patent.

The term "order" was used in the '430 Patent (Col 8, lines 52-56) to refer to the process of ensuring that 2D sketch and other sub-feature dependencies of a particular feature get resolved and built before the feature itself to duplicate the order as in source CAD system. In contrast, in Claim 1, as amended, the term "order" refers to the process of arriving at the parent/child feature-level ordering by analyzing the two-dimensional drawing, and no prior ordering exists before this step in the current application. Because the scope of "building features" in the '430 Patent is applicable in the 3D-3D domain of features that are already present in the source 3D CAD system being mapped to the target 3D CAD system, and the term "building features" is used in current invention is related with 3D features identified, defined, built, and stored using an input two-dimensional drawing. As such, one of ordinary skill in the art would realize that the context and usage of the term "application neutral format" in current invention is very different from that in the '430 Patent.

In discussing a rejection under 35 U.S.C. 103, the Court, in *In re Wesslau*, 147 U.S.P.Q. 391, 393 (C.C.P.A. 1965) held that:

> It is impermissible within the framework of Section 103 to pick and **choose** from any one reference only so much of its as will support a

> given position, to the **exclusion** of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. [Emphasis added].

The Examiner cannot selectively abstract only certain parts of a particular reference and arbitrarily discard the remaining parts of the reference in order to support the Examiner's position, thereby using the Applicant's claimed subject matter as a blueprint by which the prior art is constructed. This type of piecemeal reconstruction of the references in light of Applicant's disclosure CANNOT be the basis for holding the invention obvious. *In re Kamm and Young*, 172 U.S.P.Q. 298, 301-302 (C.C.P.A. 1972).

Applicants submit that the terms used by the Examiner from the '430 Application are out of context, as described above. Applicants submit that the consistent criterion for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that a particular process should be carried out and would have reasonable likelihood of success, viewed in the light of the prior art. Both the suggestion AND the expectation of success must be founded in the prior art, not the applicant's disclosure. Thus, "obvious-to-try", or "obvious-to-test" or "experiment" is not a proper standard of 35 U.S.C. 103. *In re Goodwin*, 198 U.S.P.Q. 1,3 (C.C.P.A. 1978); *In re Antonie*, 195 U.S.P.Q. 6,8 (C.C.P.A. 1977); *In re Geiger*, 2 U.S.P.Q. 2d 1276, 1278 (Fed. Cir. 1987); *In re Dow Chemical Co.*, 5 U.S.P.Q. 2d 1529, 1532 (Fed. Cir 1988).

IN A CONTEXT FOR "OBVIOUSNESS," WHERE IS THE TEACHING OR SUGGESTION OF:

(a) **selecting** from the disclosure of the '430 Patent only the terms "feature" and "2-D Sketch," but discarding the fact that the "features" are already present in the source CAD system and are merely being mapped to the target CAD system.

(b) **selecting** from the disclosure of the '430 Patent only the term "ordering," but discarding the disclosure that method step of "ordering" in the '430 Patent is in

context of a "sketch-to-feature," whereas Applicant used the term to convey a "feature-to-feature" ordering and a dependency resolution, which was not discussed or described in the '430 Patent.

(c) **selecting** from the disclosure of the '430 Patent only the term "order," but discarding the teaching that the term "order," as used in the '430 Patent (Col 8, lines 52-56) refers to the process of ensuring that 2D sketch and other **sub**-feature dependencies of a particular feature get resolved and built before the feature itself to duplicate the order as in source CAD system, whereas the context of "order" in current invention, refers to the process of arriving at the **parent/child** feature-level ordering by analyzing the two-dimensional drawing, and where no prior ordering exists before this step.

d) **selecting** from the disclosure of the '430 Patent only the statement "Derived data is automatically computed by a system for internal or external purposes," but discarding the teaching that the derived data refers to auxiliary parameters of a 3D model to be used in manufacturing or analysis studies (heat transfer/strength), whereas the term "derived data" in the current application refers to higher-level features data such as extrusion, revolve, and conveys that base feature data modification would appropriately modify the dependent higher-level feature data.

e) **selecting** from the disclosure of the '430 Patent only the term "sketch plane," but discarding the teaching that the term was described as a feature (See Table 1 of the '430 Patent), whereas the same term in the current application was used to convey that the coordinate system data structure that is used to detect at least one of the three items and in that order to build the current feature element.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 493 (Fed. Cir. 1991). **Thus, Applicants assert that NONE of the information listed in the**

'430 Patent listed above suggest a reasonable expectation of success for developing a method for:

building, a three-dimensional model using an application neutral format by building a plurality of features based on a feature class to give a plurality of built features, wherein the feature class comprises feature geometry, feature constraints, and feature dimensions;

defining each built feature as a geometric representation of an individual feature type;

ordering the plurality of built features;

building a three-dimensional feature-based model based on the ordering of the plurality of built features to give a representation; and

storing the representation in a binary file format.

Applicants submit that in the field of computer graphics many specific terms must be read in context and not on face value alone. The Court has held:

> Claims are read in the light of the disclosure of the specification on which they are based, not in a vacuum. *In re Dean* 291 F.2d 947, 130 U.S. P.Q. 107, 110 (C.C.P.A. 1961).

Additionally, the Court has held:

> The criterion of 35 U.S.C. is not whether the differences from the prior art are simple enhancements," but whether it would have been obvious to make the claimed structure. *Continental Can Co. USA Inc. V. Monsanto Co.*, 948 F.2d 1264, 20 U.S.P.Q2.d 1746, 1752 (Fed. Cir. 1991.)

Applicants submit that because the '430 Patent DOES NOT teach or discuss the many elements of the current invention. Even though some of the same terms appear in both documents,

they are NOT used in the same context, as discussed above, and as made clear in the specification. Therefore, it would NOT be possible for one of ordinary skill in the art to make the claimed invention, as described in Claims 1, 6-13, 19-22, 24, 26, 28, each as amended. Additionally, The Examiner has conceded that the '430 Patent does NOT directly teach "building features based on a feature class." Applicants submit that since both the suggestion AND the expectation of success must be founded in the prior art, it would NOT have been obvious to one of ordinary skill in the art at the time of the invention to build the claimed features based on a feature class, without the having a suggestion of all the claimed elements, and without a suggestion of the invention, an expectation of success would not be forthcomming.

B. U.S. Patent 6,212,441 issued to Hazama ("the '441 Patent) in view of the '430 Patent.

The Examiner has rejected Claims 58-63 and 65-68 under 35 U.S.C. §103(a), as being unpatentable over U.S. Patent 6,212,441 issued to Hazama ("the '441 Patent") in view of the '430 Patent. The Examiner is of the opinion that the '441 Patent teaches the detecting step of Applicants' Claim 58, and the profile analysis and feature analysis steps. The Examiner has stated that the '441 Patent DOES NOT teach a producing a list step, but it would have been obvious to one of ordinary skill in the art. The Examiner has also stated that the '441 Patent DOES NOT teach the writing step, but the '430 Patent teaches this step and it would have been obvious to combine these documents. The Examiner has also selected a specific terms as limitations from the '430 Patent to reject Applicants' Claims 59-68 that also utilize the same selected terms.

In response, Applicants have amended Claim 58, from which the remaining Claims 59-68, now depend. Thus, the argument made for Claim 58 is applicable to the remaining dependant claims.

Applicants submit that the teachings of the invention in the '441 Patent cater to the domain of **sheet metal drawings only** wherein the profile information in almost all cases is present in only one view of the drawing (the other views are usually simple and rectangular in nature) and the process of "detecting" the depth of features (Col 57, line 54) is done by analyzing the other views.

In contrast, the current application provides an architecture for accepting **generic mechanical piece part drawings** with more complex view configurations and analyze them to produce parametric, feature-based 3D models. The feature sets used in the two inventions are mutually exclusive, and cannot be compared.

As such, the feature detection process being described in the '441 Patent is related to 3D part geometry elements such as faces, corners and bend lines etc, as described (See: Col 32, lines ~29-45 of the '441 Application):

> "The above described process may be performed for every possible combination of faces in the part, to determine the corner feature of each of the faces. Other features relating to the faces and bendlines of the part may be conducted in a similar fashion by analyzing the part geometry and topology data.... The code was written in C++ programming language and includes the various processes for extracting and as **detecting features** such as those noted in Table 1....After **detecting the various features** of the part, the basic topology of the part may be modified to include the extracted features. Instead, the inventors of the present application have discovered that it is more efficient and easier to compare feature extraction information when provided in the form of matrices."

In contrast, Claim 58, as amended, utilized a features detection process from within 2D drawings. Additionally, the term "ordered list" conveys the generic collection and not to refer to any data structure in Computer Science parlance.

Applicants submit that the '441 Patent is drawn to a process of developing 3D **sheet metal** parts from 2D **sheet metal** drawings **only** and is used for identifying manufacturing features. In contrast, Applicants' invention is drawn to a method identifying elements in multiple orthographic views of generic 2D mechanical drawings to form parametric, design feature-based 3D model, which is NOT taught or suggested in either the '430 Patent or the '441 Patent. Claim 58, as amended teaches:

Claim 58, as amended, now includes the limitation of:

"using an automated feature detection system to create matched feature loops;

and performing a profile analysis and a feature analysis on the matched feature loops;"

These limitation were described in paragraphs [047]-[057], but were not mentioned in the '441 Patent. Additionally, the terms "Profile Analysis" and "Feature Analysis" (See Figures 3a-step 124, 3f-step 192 and Claim 58d of the current application) respectively refer to the processes of:

i. employing a rule-based strategy to decide upon the most probable choice of profile from the current matched feature loop and the choice of feature type (extrusion or revolve);

ii. analyzing the matched feature loops to ascertain their dependency order and the relative volume operation (Addition or Removal);

neither of which is described or mentioned in the '441 Application.

Furthermore, the '441 Patent, alone or in combination with the '430 Patent, **DOES NOT** teach or suggest the combination of:

using an automated feature detection system to create matched feature loops;

performing a profile analysis and a feature analysis on the matched feature loops;

producing an ordered list of three-dimensional features; and

writing the ordered list of three-dimensional features to a binary file format,

as method steps for converting a two-dimensional drawing into a three dimensional model.

Applicants respectfully submit that according to the Manual of Patent Examining Procedure - (MPEP) §2143 there are three requirements for Prima Facie Obviousness:

1) Some suggestion or motivation either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings;

2) A reasonable expectation of success; and

3) Prior art reference (or references when combined) must each list or suggest all of the claim limitations.

Because each of the claim limitations NOT disclosed or suggested in the combination the '430 Patent, and the 441 Patent, one of ordinary skill in the art could NOT have a reasonable expectation of success. The Court has held:

> " A prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art.: If the Examiner fails to establish a prima facie case, the rejection is improper and will be overturned. *In re Rijckaert*, 9 F.3d 1531, 28 U.S.P.Q. 2d 1955, 1956 (Fed. Cir. 1993).

Because the Examiner has conceded that the '441 Patent "DOES NOT teach the claimed producing a list step," Applicant submit that the third requirement for Prima Facie Obviousness has not been met here.

Applicants respectfully asserts that the claims of the current application are patentably distinct from the specification of the '441 Application and the '430 Patent, as described above. Moreover, Applicants submit that the teachings of the '430 Patent and of the '441 Patent serve two totally exclusive domains and their combination is not a practical proposition, and event if these documents were combined, the scope would not duplicate what is claimed by the current claims, as amended. As described above, the '430 Patent is related to starting with a pre-existing 3D model, and the '441 Patent is related to a process of identifying features from sheet metal drawings.

IV. Conclusion

Applicant respectfully submits that, in light of the foregoing comments, Claims 1, 6-13, 19-22, 24, 26, 28, 58-63, 64-68, 71, and 72 are in condition for allowance. A Notice of Allowance is therefore requested.

If the Examiner has any other matters which pertain to this Application, the Examiner is encouraged to contact the undersigned to resolve these matters by Examiner's Amendment where possible.

Respectfully submitted,

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